AP Statistics Project

Your group (groups of 2 or 3) must come up with an activity that:

- 1. Can be done in class
- 2. Can be done within one minute
- 3. Can be measured (gives *quantitative* data)

You will also need to come up with two *categorical* variables that you can collect data on from students in our class.

- The first variable must have only 2 values (2 answer choices)
- The other variable must have a **minimum** of 3 values (at least 3 answer choices)
- You cannot use grade, age, or handed-ness.
- You can always record more than 2 categorical variables and decide later which you want to use
- You must also record gender (but this does not count as one of your categorical variables)

On Monday, SEPTEMBER 19th we will conduct our experiments.

• Before we start data collection, you should create a table in Fathom to record your data. You should record data directly into Fathom during the class data collection time

Collection 1							
	GENDER	QuantVar	CategVar1	CategVar2	<new></new>		

- When we do our class data, one of you will stay at their station to run the activity and collect information.
- The other person will move around the class completing the activity at each station.
- Once the first person returns to the group, you will switch places.

You will have 3 **DAYS** to work in class.

Due to me by 7:30 on the due date: 9/25

- Your power point slides printed (6 to a page)
- Your power point dropped in my drop folder or emailed to me.
- Your fathom document dropped in my drop folder or emailed to me.

The power point:

• Must have a title slide, an introduction (tell what your project was about, how you collected data, what variables you recorded) and a conclusion (overall summary of what was discovered/learned from your data analysis, including comments on each of the numbered things below).

- You should include the following elements:
 - 1. Overall Quantitative Variable Analysis
 - Histogram and Boxplot of overall collected quantitative data
 - Summary statistics (all!)
 - Outlier test (Show all work)
 - Complete description
 - Comparison to normality
 - Find the % of observations between 1, 2, and 3 std. deviations from the mean, and then compare those percentages to 68-95-99.7 rule.
 - 2. Quantitative variable analysis compared to gender
 - Parallel boxplots of quantitative data broken down by gender
 - summary statistics of each gender
 - outlier test on each gender
 - compare and describe both genders completely
 - 3. Quantitative variable analysis compared to categorical variable (with only 2 values)
 - Parallel boxplots of quantitative data broken down by your categorical variable that had only 2 values
 - Summary statistics on both values
 - Outlier test on each value
 - Compare and describe both values completely
 - 4. Categorical variable analysis #1A (variable with more than 2 values)
 - Simple one-way table of this categorical variable (in counts)
 - Simple one-way table of this categorical variable in %
 - Create a bar graph of this categorical variable
 - General conclusion about how this variable is distributed
 - 5. Categorical variable analysis #1B (variable with more than 2 values)
 - Create a bar graph of gender with counts and %'s listed
 - Simple, two-way table of gender vs. this categorical variable
 - Create a segmented bar graph with gender on your x-axis, broken down by this categorical variable. Include % for each segment of each gender.
 - Are the two variables independent? Justify your answer!
 - 6. Categorical variable analysis #2 (variable with 2 values)
 - Simple one-way table of this categorical variable (in counts)
 - Simple one-way table of this categorical variable in %
 - Create a bar graph of this categorical variable
 - Simple, two-way table of gender vs. this categorical variable
 - Create a segmented bar graph with gender on your x-axis, broken down by this categorical variable. Include % for each segment of each gender.
 - Are the two variables independent? Justify your answer!
 - 7. Discussion of any sources of bias & error in your project

NOTES:

- Be sure all descriptions are in full sentences, with units.
- Be sure all graphs are appropriately labeled!
- Print all slides (6 to a page) and hand in with your presentation.

ITEM	POINTS DEDUCTED					
ΑCTIVITY						
Measurable (quantitative) data with 2 categorical variables	5					
POWER POINT						
Introduction (how you collected the data, what you measured)	3					
 Graphical display of quantitative data Summary statistics Outlier test & result Complete description (full sentences, units, etc.) Comparison to normality 	2 3 4 5					
 Graphical display of quantitative data broken down by gender Summary Statistics for both genders Outlier test & result on both genders Compare & describe both genders completely 	3 5 6 6					
3) Graphical display broken down by categorical variable (w/ 2 values) Summary Statistics for all values of the variable Outlier test & result on all values of the variable Compare & describe all values of the variable completely	3 5 6 6					
4) One-way table of categorical variable (w/ 2+ values) in # and then in % Bar graph of categorical variable General conclusion about how this variable is distributed	4 3 3					
5) Bar graph of gender with counts and %'s listed Simple, two-way table of gender vs. categorical variable (w/ 2+ values) Segmented bar graph with gender on x-axis (Include % for each segment) Are the two variables independent?	4 3 3 4					
6) One-way table of categorical variable (w/ 2 values) in # and then in % Bar graph of categorical variable Simple, two-way table of gender vs. categorical variable Segmented bar graph with gender on x-axis (Include % for each segment) Are the two variables independent?	4 3 3 4					
 Discussion of any sources of bias & error in your project Conclusion 	5 5					
 8) Neat, organized, in power point, slides printed Fathom file dropped/emailed Days late (-20 for each day late) Individual Contribution 	10 4 (-20) 20					